

CLAIM AMENDMENTS

It is respectfully requested that the claims be amended without prejudice, without admission, without surrender of subject matter, and without intention of creating any estoppel as to equivalents, as follows. This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (currently amended). A method of flow cytometry, comprising the steps of:
 - a. obtaining sperm cells of a mammal;
 - b. injecting said sperm cells at an injection point along the central longitudinal axis of a fluid stream within a nozzle of a flow cytometer;
 - c. forming a plurality of droplets in said fluid stream;
 - d. entraining in each of a portion of said plurality of droplets one of said sperm cells injected into said fluid stream;
 - e. analyzing said sperm cells entrained in said portion of said plurality of droplets;
 - f. discriminating between said sperm cells to generate two populations based upon at least one sperm cell characteristic; and
 - g. adjustably varying axial location of said injection point of said sperm cells along said central longitudinal axis in said fluid stream within said nozzle of said flow cytometer to increase resolution of said at least two populations of said sperm cells based upon said at least one sperm cell characteristic.
2. (previously presented). A method of flow cytometry as described in claim 1, wherein said mammal is selected from the group consisting of a bovine mammal, an equine mammal, a ovine mammal, a canine mammal, a feline mammal, a swine mammal, a marine mammal, and a deer mammal.

3. (original). A method of flow cytometry as described in claim 1, wherein said fluid stream comprises a sheath fluid.
4. (previously presented). A method of flow cytometry as described in claim 3, wherein said sheath fluid comprises a sheath fluid having a buffer selected from the group consisting of a citrate buffer, a phosphate buffer, and a HEPES buffer.
5. (previously presented). A method of flow cytometry as described in claim 1, wherein said step of obtaining sperm cells of a mammal comprises the step of obtaining sperm cells of a first species of mammal and obtaining sperm cells of a second species of mammal and wherein said step of adjustably varying axial location of said injection point of said sperm cells along said central longitudinal axis in said fluid stream to increase resolution of said at least two populations of said sperm cells comprises the step of establishing a first injection point for said sperm cells of said first species of mammal at a first location along said central longitudinal axis in said fluid stream to increase resolution of said at least two populations of sperm cells and the step of establishing a second injection point for said sperm cells of said second species of mammal at a second location along said central longitudinal axis in said fluid stream to increase resolution of said at least two populations of sperm cells.
6. (previously presented). A method of flow cytometry as described in claim 1, wherein said step of adjustably varying axial location of said injection point of said sperm cells along said central longitudinal axis in said fluid stream to increase resolution of said at least two populations of said sperm cells comprises the step of adjustably varying axial location at which a particle injector introduces said sperm cells in said fluid stream.
7. (previously presented). A method of flow cytometry as described in claim 6, wherein said step of adjustably varying axial location at which a particle injector

introduces said sperm cell in said fluid stream further comprises the step of providing an axially slidly adjustable coupling between said particle injector and a nozzle body.

8. (previously presented). A method of flow cytometry as described in claim 6, wherein said step of adjustably varying axial location at which a particle injector introduces said sperm cell in said fluid stream further comprises the step of operating a mated pair of spiral threads between said particle injector and a nozzle body.
9. (previously presented). A method of flow cytometry as described in claim 6, wherein said step of adjustably varying axial location at which a particle injector introduces said sperm cells in said fluid stream further comprises the step of replacing said particle injector with a second particle injector to alter distance between said injection point of said sperm cells into said fluid stream and a nozzle orifice through which said fluid stream flows.
10. (previously presented). A method of flow cytometry as described in claim 1, wherein said step of adjustably varying location of said injection point of said sperm cells along said central longitudinal axis in said fluid stream to increase resolution of said at least two populations of said sperm cells further comprises the step of adjustably varying axial distance between said injection point of said sperm cells along the central longitudinal axis in said fluid stream and a nozzle orifice through which said fluid stream flows.
11. (previously presented). A method of flow cytometry as described in claim 1, wherein said fluid stream has fluid stream characteristics and wherein said step of adjustably varying axial location of said injection point of said sperm cells in said fluid stream along said central longitudinal axis to increase resolution of said at least two populations of said sperm cells further comprises the step of adjustably varying axial location of said injection point of said sperm cells in response to said fluid stream characteristics.

12. (previously presented). A method of flow cytometry as described in claim 1, wherein said fluid stream has altered fluid stream characteristics and wherein said step of adjustably varying axial location of said injection point of said sperm cells in said fluid stream along said central longitudinal axis to increase resolution of said at least two populations of said sperm cells further comprises the step of adjustably varying axial location of said injection point of said sperm cells in response to said altered fluid stream characteristics.
13. (original). A method of flow cytometry as described in claim 1, further comprising the step of separating said sperm cells into a first population of sperm cells and a second population of sperm cells.
14. (previously presented). A method of flow cytometry as described in claim 13, wherein said step of discriminating between said sperm cells to generate two populations based upon at least one sperm cell characteristic further comprises the step of discriminating between said sperm cells based upon a sex characteristic, and wherein said first population of sperm cells bear an X-chromosome and said second population of sperm cells bear a Y-chromosome.
15. (withdrawn). A flow cytometer, comprising:
 - a. a fluid stream;
 - b. a nozzle body in which said fluid stream flows;
 - c. a nozzle orifice at which said fluid stream exits said nozzle;
 - d. a particle source;
 - e. a particle injector fluidically coupled to said particle source which entrains at least one particle at a location in said fluid stream; and
 - f. a selectably variable adjustment element to alter distance between said nozzle orifice and said location in said fluid stream at which said particle injector entrains said at least one particle.
16. (withdrawn). A flow cytometer as described in claim 15, wherein said particle

comprises a cell.

17. (withdrawn). A flow cytometer as described in claim 15, wherein said particle comprises a sperm cell.
18. (withdrawn). A flow cytometer as described in claim 15, wherein said sperm cell is obtained from a male of a species of mammal selected from the group consisting of a bovine species of mammal, an equine species of mammal, a ovine species of mammal, a canine species of mammal, a feline species of mammal, swine species of mammal, a marine species of mammal, and a deer species of mammal.
19. (withdrawn). A flow cytometer as described in claim 15, wherein said selectably variable adjustment element to alter distance between said nozzle orifice and said location in said fluid stream at which said particle injector entrains said at least one particle comprises slidly adjustable engagement between said particle injector and said nozzle orifice.
20. (withdrawn). A flow cytometer as described in claim 15, wherein said selectably variable adjustment element to alter distance between said nozzle orifice and said location in said fluid stream at which said particle injector entrains said at least one particle comprises a pair of mated spiral threads engaged between said particle injector and said nozzle orifice.
21. (withdrawn). A flow cytometer as described in claim 15, wherein said selectably variable adjustment element to alter distance between said nozzle orifice and said location in said fluid stream at which said particle injector entrains said at least one particle comprises replacement of said particle injector with a second particle injector which entrains said at least one particle at a second location in said fluid stream.
22. (withdrawn). A flow cytometer, comprising:
 - a. a fluid stream;
 - b. a nozzle body in which said fluid stream flows;

- c. a nozzle orifice at which said fluid stream exits said nozzle;
 - d. a particle source;
 - e. a particle injector fluidically coupled to said particle source which entrains at least one particle at a selectably variable location in said fluid stream.
23. (canceled).
24. (withdrawn). A flow cytometer, comprising:
- a. a fluid stream;
 - b. a nozzle body in which said fluid stream flows;
 - c. a nozzle orifice at which said fluid stream exits said nozzle;
 - d. a particle source;
 - e. a conduit which fluidically couples said particle source to said nozzle body;
 - f. a particle injector coupled to said conduit which entrains at least one particle at a location in said fluid stream; and
 - g. a selectably variable adjustment element to alter distance between said nozzle orifice and said location in said fluid stream at which said particle injector entrains said at least one particle.
25. (withdrawn). A flow cytometer, comprising:
- a. a nozzle having a nozzle orifice;
 - b. a particle injector selectably adjustably positional within said nozzle, whereby positional adjustment of said particle injector alters distance between injection point of said particle injector and said nozzle orifice.
26. (canceled).
27. (previously presented). A method of flow cytometry as described in claim 6 wherein said step of adjustably varying axial location at which a particle injector introduces said sperm cell in said fluid stream further comprises the step of

adjustably varying axial location of said particle injector with a keyed stop mated with a nozzle body.